

1 ☐ Coordinated Enhanced Observing Period

- Background
- Objectives
- Approach
- Products
- Issues
- This Workshop

2 ☐ CEOP OPPORTUNITY

- Period of increased global information
- Readiness of regional and other efforts

start: July 1 2001

main: October 2001 - October 2003

3 ☐ A PILOT, TEST CASE

- CEOP is:
 - a pilot, test case
 - a target of opportunity
- And, of course:
 - a complement to other existing programs and observational networks

4 ☐ A 2-YEAR TIME PERIOD

Focussing on a particular 2-year time period

offers many benefits:

- A good opportunity to advance the goals of WCRP through activities linked with:
 - water and energy balance studies
 - transferability and prediction
- Begin to study some of the intra-seasonal oscillations that are important in the Tropics

5 ☐ A 2-YEAR TIME PERIOD (2)

- Begin to study monsoon systems from a more 'global' sense rather than individual phenomena
- Its 'hands-on' experience should be very useful to future water-related, global efforts
- Logistically, very efficient utilization of satellite, in-situ and model information
- Produce a legacy of consistent datasets

6 ☐ GUIDING GOAL

To understand and model the influence of continental hydroclimate processes on the predictability of global atmospheric circulation and changes in water resources, with a particular focus on the heat source and sink regions that drive and modify the climate system and anomalies.

7 ☐ CEOP OBJECTIVES

- To use enhanced observations to document, better understand and improve the simulation of water and energy fluxes and reservoirs over land (and adjacent areas) on diurnal to annual temporal scales as well as the prediction of these on temporal scales up to seasonal for water resource applications
- Document the seasonal march of the monsoon systems and better understand their driving mechanisms and their possible physical connections

8 ☐ WATER AND ENERGY ISSUES

- How do land area water and energy fluxes and reservoirs vary over the diurnal to the annual cycle and what local and large scale factors control these?
- How well as these fluxes and reservoirs simulated and predicted over various regions?
- How do the fluxes and reservoirs influence the large-scale environment?

9 ☐ WATER AND ENERGY ISSUES

- Determination & simulation of water cycle: diurnal to annual scales
- Water cycling over land areas (and adjacent oceans)
- Global and regional parameterizations
- Prediction capabilities

Focal Points: Continental-scale experiments and other regions

10 ☐ WATER AND ENERGY PARAMETERS

Our models certainly address the coupled land-atmosphere (ocean) system:

For example, 'virtual soundings' from GEM contain (over land):

- 60 surface variables
- 27 atmospheric variables
- 9 fixed fields

11 ☐ WATER & ENERGY REGIONAL STUDIES

Focal points include:

Asia

GAME ...

South America LBA ...

North America GAPP, MAGS ...

Europe BALTEX

12 ☐ MONSOON ISSUES AND FOCAL POINTS

- Document seasonal march
- Better understand driving mechanisms
- Examine links with remote phenomena
- Assess model performance in simulation and prediction

13 ☐ MONSOON ISSUES

- How do land surface and oceanic features interact to govern the timing, magnitude and location of monsoonal circulations?
- What are the similarities and differences between monsoonal systems over different regions under the 'same' climate system?
- What are the intraseasonal variations of the heat sources and sinks over the monsoon regions, how are these linked with intraseasonal oscillations, and how do these impact monsoon prediction?

14 ☐ MONSOON SYSTEMS

Focal points:

- Austral-Asian GAME ...
- South American VAMOS ...
- North American GAPP, NAME ...
- African CATCH ...

15 ☐ KEY ELEMENTS

- Satellite information
 - experimental products
 - operational products
- Ground-based observations
- Data assimilation
- Global and regional models
- Diagnostic studies with analysis, re-analysis and other products
- Dataset production

16 ☐ SATELLITES

- Experimental Satellites
 - ADEOS, ALOS, Aqua, Envisat, Terra, TRMM
 - host of products:

atmospheric
surface
vegetation

- Operational Satellites
GEWEX (GRP) and other products

17 ☐ REFERENCE SITE DATA

Water and energy parameters normally including:

- Atmospheric
- Surface
- Sub-Surface

18 ☐ FIELD CAMPAIGNS

A number of field campaigns will be conducted over different regions to provide more comprehensive information over limited time periods. These include:

LBA wet and dry periods
GAME several experiments
...

19 ☐ ASSIMILATION

- The detailed plan for data assimilation is currently being established.
- It will need to be comprised of two overall aspects:
 - Real-time during the observational period
 - Later effort using additional information

20 ☐ MODELS

Model utilization includes:

- REAL-TIME
 - land and atmosphere assimilation
- EXPERIMENTS
 - ensemble predictions
 - transferability
- ANALYSES
 - diagnostic and validation studies
 - 'budget' characterization

21 ☐ SATELLITE AND MODEL EVALUATION

CEOP validation studies will utilize observations from:

- 'Reference sites' under wide range of conditions
- Observational efforts to evaluate particular satellite products
- Comprehensive campaigns with a variety of observational platforms

22 ☐ MODEL TRANSFERABILITY

- Re-analysis and global datasets for forcing regional models
- Regional and global model evaluations
- Special test experiments will be carried out over regions including:
 - La Plata River basin
 - Canadian Prairies

23 ☐ DIAGNOSTIC STUDIES

Key issues to be addressed include:

- How well do our improved assimilated model products allow us to characterize water and energy budget features over land?
- How is land interacting with the atmosphere?

24 ☐ CEOP DATA PRODUCTS

Includes:

- Consistent reference site information
- 'Virtual soundings' using model products over many locations
- Existing and new experimental satellite data and products
- Special observational campaign information

25 ☐ OBSERVATIONAL PERIOD

One can consider CEOP to have 3 smaller observational phases:

July-Sept 2001:	Seasonal dataset test
Oct/01-Sept/02:	First annual cycle
Oct/02-Sept/03:	Second annual cycle

26 ☐ CURRENT ISSUES

Some components that need to be clarified include:

- satellite information and analyses
- modelling plans
- data management
- virtual soundings
- organization
- ...

27 THIS WORKSHOP

We need to:

- finalize our overall plans
- clarify specific legacy ‘products’
- identify specific, do-able actions
- identify who’s carrying out the actions
- agree on a timeline to carry out the actions